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EXAMINER	
SCOTT, RANDY A	
ART UNIT	**PAPER NUMBER**
2453	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/797,152	BANERJEE ET AL.	
	Examiner	Art Unit	
	RANDY SCOTT	2453	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,10-28 and 30-36* is/are pending in the application.

4a) Of the above claim(s) *13-18 and 30-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10-12,19-28,35 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed 4/21/2011

Claim Status

2. Claims 13-18 and 30-34 have been withdrawn from consideration. Claims 35-36 have been currently amended.

Claim Rejections – 35 USC 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained through the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 6-7, 12, 24, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593), in view of Alfonsi et al (US 5,491,690), further in view of Andrews et al (US 7,020,698).

Regarding claims 1, 24, and 35, Hahn et al disclose:

Receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see

sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al do not specifically teach searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

However, Busche provides the specified deficiencies, including searching the stored information to identify a plurality of service nodes (see col. 4, lines 22-25, which teaches locating a neighboring node that is capable to provide a service) operable to provide the requested service in response to a service path not existing that is operable to provide the requested service (col. 5, lines 43-54).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to efficiently provide requested data routed through optimal paths with the motivation of providing the benefit of teaching an improvement upon optimal path and route searching by implementing node location service searching to perform a specific service.

Hahn et al and Busche fail to teach applying a clustering algorithm to further reduce the size of the set of candidate service nodes.

Alfonsi et al teach the specified deficiencies (see col. 11, lines 5-14, which discloses the Bellman-Ford algorithm for choosing a destination node that meets quality of service

requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al and Busche with the general concept illustrated by Alfonsi et al, in order to successfully select a service node based on short hop from the requesting node with the motivation of providing the benefit of teaching an improvement upon service node selection by implementing an algorithm for selecting a node based on optimal location.

Hahn et al, Busche, and Alfonsi et al fail to teach applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service.

Andrews et al teach the specified deficiencies (see col. 16, lines 33-38, which discloses utilizing a clustering algorithm to determine node distances).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the concept illustrated by Andrews et al, in order to efficiently discover node topology for an optimal node, distance wise, with the motivation of providing the benefit of teaching an improvement upon service node selection by implementing an algorithm for selecting a node based on distance.

Regarding claim 6, Hahn et al disclose:

Wherein searching the stored information comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service or is operable to provide at least one of the requested services if a plurality of services are requested (see sec [0011], lines 3-6, which teaches performing a query to determine a route that has a server instance capable of handling the request and sec [0017], lines 2-5, which teaches determining if a particular route has failed).

With respect to claim 7, Hahn et al fail to teach wherein searching the stored information to determine whether a service path exists comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service and is within a predetermined distance to a node requesting the service.

Busche teaches the specified deficiencies (see col. 6, lines 1-5, which teaches predetermined shortest path determination for routers connected services to destination nodes).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to effectively route services to nodes in a network with the motivation previously addressed.

Regarding claim 12, Hahn et al disclose:

Wherein searching stored information comprises searching stored information for at least one of a service path and a service node operable to provide the requested service via a multicast in an application layer multicasting network (see sec [0018], lines 3-8, which teaches sing the multicast protocol to send messages throughout each DSD agent to verify that each agent may be

able to receive data via each route in the network, the procedure also checks for route failure, also see sec [0067], lines 1-3, which discloses that each DSD agent table contains server routes for each requested service).

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Andrews et al (US 7,020,698), further in view of Aggarwal (US 2004/0221154).

With respect to claim 2, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, "global hash table") and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept of illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation of providing the benefit of improving upon appropriate path selection by implementing a hash function.

With respect to claim 3, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, "global hash table") and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 4, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a

logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, “global hash table”) and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0013], lines 18-23, “physical network”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 5, Hahn et al, Busche, and Alfonsi et al fail to teach wherein searching stored information comprises: searching the stored information to determine whether a service path or a service node exists that is operable to provide the requested service and satisfy a QoS characteristic identified in the request, the QoS characteristic being associated with delivering the requested service.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, “Qos”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to efficiently transmit requested data along convenient paths in a network with the motivation previously addressed.

6. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690), in view of Andrews et al (US 7,020,698), further in view of Kumar (US 2005/0122904).

With respect to claim 10, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the request comprises information identifying a plurality of requested services and an order for delivering the requested services.

Kumar teaches the specified deficiencies (see sec [0027], lines 2-6, which teaches specifying one or more services being requested).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services with the motivation of providing the benefit of teaching service selection based on the QOS of the particular service node.

With respect to claim 11, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the request comprises information identifying at least one requested service and at least one QoS characteristic associated with delivering the requested service.

Kumar teaches the specified deficiencies (see sec [0022], lines 2-8, which teaches QOS based on service characteristics).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services with the motivation previously addressed.

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Andrews et al (US 7,020,698) in view of Oom Temudo de Castro et al (US 2005/0030904), further in view of Cloonan et al (US 5,345,444).

Regarding claim 19, Hahn et al disclose:

Receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al do not specifically teach searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

However, Busche provides the specified deficiencies, including searching the stored information to identify a plurality of service nodes (see col. 4, lines 22-25, which teaches locating a neighboring node that is capable to provide a service) operable to provide the requested service in response to a service path not existing that is operable to provide the requested service (col. 5, lines 43-54).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept illustrated by Busche, in order to efficiently provide requested data routed through optimal paths with the motivation of providing the benefit of teaching an improvement upon optimal path and route searching by implementing node location service searching to perform a specific service.

Hahn et al and Busche fail to teach applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service and to further reduce the size of the set of candidate service nodes.

Alfonsi et al teach the specified deficiencies (see col. 11, lines 5-14, which discloses the Bellman-Ford algorithm for choosing a destination node that meets quality of service requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al and Busche with the general concept illustrated by Alfonsi et al, in order to successfully select a service node based on short hop from the requesting node with the motivation of providing the benefit of teaching an improvement upon service node selection by implementing an algorithm for selecting a node based on optimal location.

With respect to claim 19, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node.

Oom Temudo de Castro et al teach the specified deficiencies (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation of providing the benefit of teaching an improvement upon node path optimization by implementing node distance measurement.

Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al do not specifically teach wherein the at least one local landmark node is on a routing path to one of the global landmark nodes.

However Cloonan et al provide language for wherein the at least one local landmark node is on a routing path to one of the global landmark nodes (see col. 12, lines 44-48).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al with the general illustrated by Cloonan et al, in order to successfully implement path routing between network nodes with the motivation of providing the benefit of updating a path selection entity with the convenience of implemented landmark nodes.

With respect to claim 20, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

Oom Temudo de Castro et al teach the specified deficiencies, including wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, “predefined landmark nodes”).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in

order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation previously addressed.

8. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Andrews et al (US 7,020,698) in view of Oom Temudo de Castro et al (US 2005/0030904) in view of Cloonan et al (US 5,345,444), further in view of Matsubara (US 2004/0008687).

With respect to claim 21, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach storing a QoS characteristic associated with at least one of the plurality of nodes in the table.

Matsubara teaches the specified deficiencies (see sec [0017] and [0018], lines 1-3, which discloses QOS implementation of path data in a path table).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al with the general concept illustrated by Matsubara, in order to effectively access resources by managing path data with motivation of providing an improvement upon QOS path selection by implementing QOS data in a path table.

With respect to claim 22, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table.

Matsubara teaches the specified deficiencies (see sec [0036], lines 5-8 and sec [0040], lines 6-9, which teach destination IDs and identifying interfaces of the node that connect with network links).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table, as illustrated by Matsubara, in order to effectively access resources by managing path data with the motivation previously addressed.

With respect to claim 23, Hahn et al, Busche, Alfonsi et al, and Oom Temudo de Castro et al fail to teach wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

Oom Temudo de Castro et al teach the specified deficiencies, including wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, "predefined landmark nodes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource with the motivation previously addressed.

9. Claims 25-29 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593) in view of Alfonsi et al (US 5,491,690) in view of Andrews et al (US 7,020,698), further in view of Aggarwal (US 2004/0221154).

With respect to claim 25, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network.

Aggarwal teaches the specified deficiencies (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation of providing the benefit of teaching an implementation of adding hashing algorithms for QOS path analysis.

With respect to claim 26, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network) and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree's role in the overlay network).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 27, Hahn et al, Busche, and Alfonsi et al fail to teach wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a

logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

Aggarwal teaches the specified deficiencies, including wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree's role in the overlay network), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0029], lines 1-6).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claim 28, Hahn et al, Busche, and Alfonsi et al fail to teach a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, "QOS based on predefined routes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general concept illustrated by Aggarwal, in order to

successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

With respect to claims 29 and 36, Hahn et al, Busche, and Alfonsi et al fail to teach a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

Aggarwal teaches the specified deficiencies (see sec [0038], lines 2-6, "QOS based on predefined routes").

It would have been obvious to one of ordinary skill in the art to combine Hahn et al, Busche, and Alfonsi et al with the general illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network with the motivation previously addressed.

10. Response to Arguments

11. Applicant's arguments filed on 4/21/11 have been fully considered and are not persuasive.

A. In response to the applicant's argument that Andrews does not teach or suggest applying a clustering algorithm to a set of service nodes:

Col. 16, lines 34-40 of Andrews, discloses outputting a clustering algorithm to a group of demand nodes and resource nodes. In this instance, the clustering algorithm is applied to

determine the distance between a client node and a node (resource node) containing a particular requested content item. Par [0023] of the applicant's specification (of the present application) defines a service node as a node that is near the requesting node and that can satisfy a request by providing a close-by node. On of ordinary skill in the art would view the clustering algorithm disclosed by Andrews, as being synonymous with the claimed clustering algorithm because the clustering algorithm disclosed by Andrews in implemented to virtually perform the same functions regarding determining a set of candidate nodes closest to the requesting node.

B. In response to the applicant's argument that Andrews fails to teach or suggest applying a clustering algorithm to further reduce the size of the set of candidate service nodes:

Andrews was not cited in regards to the limitation of reducing the size of the set of candidate service nodes. Alfonsi was cited in regards to the specified limitation, which discloses a Bellman-Ford algorithm for choosing a destination node that meets quality of service requirements and determining the minimum hop and path length and an updated algorithm used to reduce the number or eligible nodes for path calculation (see col. 11, lines 5-14 of Alfonsi).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy A. Scott whose telephone number is (571) 272-3797. The examiner can normally be reached on Monday-Thursday 7:30 am-5:00 pm, second Fridays 7:30 am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Krista Zele can be reached on (571) 272-7644. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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